


**COMPLETE LISTING OF CLAIMS  
IN ASCENDING ORDER WITH STATUS INDICATOR**

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1-29. (Cancelled)

30. (New) In a method of making a product comprising man-made vitreous fibres which are shown to be biodegradable at pH 4 to 5 by forming the fibres from a melt composition and collecting the fibres, utilizing a melt composition having an analysis, measured as weight of oxides, which includes



SiO <sub>2</sub>	32 to below 45%
Al <sub>2</sub> O <sub>3</sub>	12 to 28%
CaO	10 to 30%
MgO	2 to 20%
FeO	2 to 15%
Na <sub>2</sub> O + K <sub>2</sub> O	0 to 12%
TiO <sub>2</sub>	0 to 4%
Other Elements	0 to 8%

wherein the composition has a melt viscosity at 1400°C of 10 to 70 poise.

31. (New) The method of making a product comprising man-made vitreous fibres according to claim 30 in which the fibres are collected in the presence of a binder to form a bonded product.

32. (New) The method of making a product comprising man-made vitreous fibres according to claim 32 in which the fibres and binder are such that the bonded product comprises a thermal insulation, fire insulation or protection, or noise regulation or protection product.

33. (New) The method of making a product comprising man-made vitreous fibres according to claim 32 in which the fibres and binder are such that the bonded product is a horticultural growth medium.

34. (New) The method of making a product comprising man-made vitreous fibres according to claim 30 in which the fibres are collected in free form useful as reinforcement or as a filler.

35. (New) The method of making a product comprising man-made vitreous fibres according to claim 30 in which the amount of  $\text{Al}_2\text{O}_3$  is 16 to 28%.

36. (New) The method of making a product comprising man-made vitreous fibres according to claim 30 in which the fibres have a dissolution rate of at least 20nm per day calculated from the amount of Si in solution in modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion.

37. (New) The method of making a product comprising man-made vitreous fibres according to claim 30 in which the melt composition is such that the fibres satisfy at least one of the following conditions:

(A) the sintering temperature of the fibres in mineral wool formed from the fibres is at least 800°C,

(B) the amount of  $\text{SiO}_2 + \text{Al}_2\text{O}_3$  is 55 to 68%,

(C) the amount of magnesium expressed as MgO is at least 5% up to 20%,


(D) the amount of iron, expressed as FeO, is below 10%,

(E) the amount of iron, expressed as FeO, is above 5%,

(F) the amount of aluminium, expressed as  $\text{Al}_2\text{O}_3$ , is at least 16%, and

(G) the amount of  $\text{Al}_2\text{O}_3$  is 20 to 23%.

38. (New) In a method of forming a product comprising man-made vitreous fibres which are shown to be biodegradable in the lung from a melt composition and collecting the fibres, utilizing a melt composition which has an analysis, measured as weight of oxides, which includes



$\text{SiO}_2$	32 to below 45%
$\text{Al}_2\text{O}_3$	above 16 to 28%
$\text{CaO}$	10 to 30%
$\text{MgO}$	2 to 20%
$\text{FeO}$	2 to 15%
$\text{Na}_2\text{O} + \text{K}_2\text{O}$	0 to 12%
$\text{TiO}_2$	0 to 4%
Other Elements	0 to 8%

and which melt composition has a melt viscosity at  $1400^\circ\text{C}$  of 10 to 70 poise.

39. (New) The method of forming a product comprising man-made vitreous fibres according to claim 38 in which the fibres are collected in the presence of a binder to form a bonded product.

40. (New) The method of making a product comprising man-made vitreous fibres according to claim 39 in which the fibres and binder are such that the bonded product comprises a thermal insulation, fire insulation or protection, or noise regulation or protection product.

41. (New) The method of making a product comprising man-made vitreous fibres according to claim 39 in which the fibres and binder are such that the bonded product is a horticultural growth medium.

42. (New) The method of making a product comprising man-made vitreous fibres according to claim 38 in which the fibres are collected in free form useful as reinforcement or as a filler.

*Cont* 43. (New) The method of forming a product comprising man-made vitreous fibres according to claim 38 in which the fibres are shown to be biodegradable in the lung by determination of solubility in the environment of macrophages in the lung.

44. (New) The method of forming a product comprising man-made vitreous fibres according to claim 38 in which the fibres have a dissolution rate of at least 20nm per day calculated from the amount of Si in solution in modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion.

45. (New) The method of making a product comprising man-made vitreous fibres according to claim 38 in which the melt composition is such that the fibres satisfy at least one of the following conditions:

(A) the sintering temperature of the fibres in mineral wool formed from the fibres is at least 800°C,

(B) the amount of  $\text{SiO}_2 + \text{Al}_2\text{O}_3$  is 55 to 68%,

(C) the amount of magnesium expressed as  $\text{MgO}$  is at least 5% up to 20%,

(D) the amount of iron, expressed as  $\text{FeO}$ , is below 10%,

(E) the amount of iron, expressed as  $\text{FeO}$ , is above 5%,

(F) the amount of aluminium, expressed as  $\text{Al}_2\text{O}_3$ , is at least 16%, and

(G) the amount of  $\text{Al}_2\text{O}_3$  is 20 to 23%.

46. (New) A method of making a product comprising man-made vitreous fibre products comprising forming one or more mineral melt compositions and forming fibres from the or each melt characterised in that

the melt viscosity is determined for the or each composition,

the solubility of the fibres in the environment of macrophages in the lung is determined,

and a composition is selected which has a viscosity at  $1400^\circ\text{C}$  of 10 to 70 poise and provides fibres which have a dissolution rate of at least 20nm per day calculated from the amount of Si in solution in modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion and which includes, by weight of oxides,

$\text{SiO}_2$	32 to below 45%
$\text{Al}_2\text{O}_3$	12 to 28%
$\text{CaO}$	10 to below 28%
$\text{MgO}$	2 to 20%
$\text{FeO}$	2 to 15%
$\text{Na}_2\text{O} + \text{K}_2\text{O}$	0 to 12%
$\text{TiO}_2$	0 to 4%
Other Elements	0 to 8%

and the selected composition is utilised for making the man-made vitreous fibres.

47. (New) A method of making a product comprising man-made vitreous fibres according to claim 46 in which the amount of  $\text{Al}_2\text{O}_3$  is above 16% up to 28%.

48. (New) A method of making a product comprising man-made vitreous fibres according to claim 46 in which the amount of  $\text{SiO}_2 + \text{Al}_2\text{O}_3$  is 55 to 68%.

49. (New) A method of making a product comprising man-made vitreous fibre products comprising forming one or more mineral melt compositions and forming fibres from the or each melt characterised in that

the melt viscosity and the fibre dissolution rate as defined herein at a pH in the range 4 to 5 are determined for the or each composition,

a composition is selected which has a viscosity at  $1400^\circ\text{C}$  of 10 to 70 poise and provides fibres which have a dissolution rate of at least 20nm per day calculated from the amount of Si in solution in Modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion, and which includes, by weight of oxides,

$\text{SiO}_2$	32 to below 45%
$\text{Al}_2\text{O}_3$	12 to 28%
$\text{CaO}$	10 to below 28%
$\text{MgO}$	2 to 20%
$\text{FeO}$	2 to 15%
$\text{Na}_2\text{O} + \text{K}_2\text{O}$	0 to 12%
$\text{TiO}_2$	0 to 4%
Other Elements	0 to 8%

and utilizing the selected composition for making the man-made vitreous fibre product .

50. (New) A method of making a product comprising man-made vitreous fibres according to claim 49 in which the amount of  $\text{Al}_2\text{O}_3$  is above 16% up to 28%.

51. (New) A method of making a product comprising man-made vitreous fibres according to claim 49 in which the amount of  $\text{SiO}_2 + \text{Al}_2\text{O}_3$  is 55 to 68%.

52. (New) A package containing a man-made vitreous fibre product wherein the fibres are formed of a composition having an analysis, measured by weight of oxides, which includes

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$\text{SiO}_2$	32 to below 45%
$\text{Al}_2\text{O}_3$	12 to up to 28%
$\text{CaO}$	10 to below 28%
$\text{MgO}$	2 to 20%
$\text{FeO}$	2 to 15%
$\text{Na}_2\text{O} + \text{K}_2\text{O}$	0 to 12%
$\text{TiO}_2$	0 to 4%
Other Elements	0 to 8%

and the composition has a viscosity at  $1400^\circ\text{C}$  of 10 to 70 poise,

and the fibres have a dissolution rate as defined herein at pH 4.5 of at least 20nm per day calculated from the amount of Si in solution in modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion,

and the package carries a label or insert which refers to solubility (a) at pH 4 to 5, (b) in the environment of macrophages in the lung or (c) both.

53. (New) A package according to claim 52 in which the amount of  $\text{Al}_2\text{O}_3$  in the analysis is above 16% up to 28%.

54. (New) A method of making a product comprising man-made vitreous fibres according to claim 52 in which the amount of  $\text{SiO}_2 + \text{Al}_2\text{O}_3$  is 55 to 68%.

55. (New) An external roof or wall cladding batt or a pipe section comprising man-made vitreous fibres formed of a composition having an analysis, measured by weight of oxides, which includes

SiO <sub>2</sub>	32 to below 45%
Al <sub>2</sub> O <sub>3</sub>	12 up to 28%
CaO	10 to below 28%
MgO	2 to 20%
FeO	2 to 15%
Na <sub>2</sub> O + K <sub>2</sub> O	0 to 12%
TiO <sub>2</sub>	0 to 4%
Other Elements	0 to 8%

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and the composition has a viscosity at 1400°C of 10 to 70 poise,

and the fibres have a dissolution rate as defined herein at pH 4.5 of at least 20nm per day calculated from the amount of Si in solution in modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion.

56. (New) A product according to claim 55 in which the amount of Al<sub>2</sub>O<sub>3</sub> in the analysis is above 16% up to 28%.

57. (New) A method of making a product comprising man-made vitreous fibres according to claim 55 in which the amount of SiO<sub>2</sub> + Al<sub>2</sub>O<sub>3</sub> is 55 to 68%.

58. (New) A product comprising man-made vitreous fibres formed of a composition which includes, by weight of oxides,

SiO <sub>2</sub>	32 to below 45%
Al <sub>2</sub> O <sub>3</sub>	<u>18 to 30%</u>
CaO	10 to 30%



MgO	5 to 20%
FeO	5 to below 10%
Na <sub>2</sub> O + K <sub>2</sub> O	0 to 10%
TiO <sub>2</sub>	0 to 4%
Other Elements	0 to below 8%

and the composition has a viscosity at 1400°C of 12 to 70 poise,

and the fibres have a dissolution rate of at least 20nm per day calculated from the amount of Si in solution in modified Gambles solution at pH 4.5 after one day's immersion and after four day's immersion,

and the fibres satisfy at least one of the following conditions:

- (A) the sintering temperature of the fibres in mineral wool formed from the fibres is at least 800°C,
- (B) the amount of SiO<sub>2</sub> + Al<sub>2</sub>O<sub>3</sub> is 55 to 68%,
- (C) the amount of magnesium expressed as MgO is at least 5% up to 20%,
- (D) the amount of iron, expressed as FeO, is below 10%,
- (E) the amount of iron, expressed as FeO, is above 5%,
- (F) the amount of aluminium, expressed as Al<sub>2</sub>O<sub>3</sub>, is at least 16%, and
- (G) the amount of Al<sub>2</sub>O<sub>3</sub> is 20 to 23%.
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